DRAFT
FORMER EMPLOYEE INTERVIEW REPORT SANTA SUSANA FIELD LABORATORY SITE, AREA IV RADIOLOGICAL STUDY VENTURA COUNTY, CALIFORNIA

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1.0 INTRODUCTION

This report presents the U.S. Environmental Protection Agency's (EPA's) efforts to interview former employees working in Area IV of the Santa Susana Field Laboratory (SSFL). The interview project was a critical component in developing an accurate historical site assessment for the SSFL, as well as informing EPA's Area IV radiological characterization study.

1.1 Background

The SSFL is located approximately 30 miles northwest of downtown Los Angeles, California, in the southeast corner of Ventura County. It consists of approximately 2,850 acres of hilly terrain. The SSFL is separated into four administrative areas that reflect historical operations and ownership. Areas I, II, and III were used for rocket engine testing, while Area IV was used for nuclear research and development. EPA is currently conducting a radiological characterization study of Area IV.

In 1947, North American Aviation (NAA) established the SSFL for testing of liquid-fueled rocket engines and associated components. Later uses of SSFL included nuclear energy research and development activities. NAA's rocket development division became known as Rocketdyne and the nuclear research division became known as Atomics International (AI). Rocketdyne later became part of Rockwell International Corporation and in 1996 was bought by The Boeing Company (Boeing).

Beginning in 1953, AI conducted two types of research sponsored by the U.S. Department of Energy (DOE), and its predecessor agency the Atomic Energy Commission (AEC): civilian nuclear energy research; and testing of liquid metals in non-nuclear components. These operations were conducted within 90 acres of Area IV of the SSFL site. The facilities within these 90 acres would later be referred as the Energy Technology Engineering Center (ETEC).

The nuclear energy research activities became increasingly active from 1953 through the late 1960s. After that time, activities declined until 1988, when most nuclear operations ceased. A few facilities remained active beyond 1988. As a result of operations conducted at SSFL, many buildings and land areas became radiologically and chemically contaminated. Starting in the early 1990s and continuing to the present, DOE has been performing decommissioning and decontamination activities of the nuclear facilities in Area IV.

1.2 Purpose

The primary purpose of EPA's interview effort was to support decisions made for the Area IV radiological characterization study, specifically by directing soil sampling teams to potential source areas of radiological contamination. Additionally, information collected from interviews

was used to identify relevant historical records, gather institutional knowledge, and develop a fully-informed history of SSFL operations. Operational information of interest included specific radionuclides of concern; locations where radioactive material was used, handled, or disposed; and incidents, releases, or unusual occurrences. Accounts of SSFL operations by the employees who worked there provided confirmation of documented evidence, information lacking from the historical record, and a depiction of how standard operating procedures were put into practice. This information aided in understanding where potential contamination may exist at the SSFL. EPA used interviewee accounts along with other lines of evidence to place soil samples in Area IV of the SSFL to further characterize the region. Ultimately, this effort will lead to overall cleanup of the SSFL Area IV property.

2.0 METHODOLOGY

EPA's interview effort occurred in two phases: an effort by EPA alone, and a joint effort between EPA and DOE. DOE simultaneously conducted its own interview effort, which is described further in DOE's September 2011 document titled *Former Worker Interview Report*. This section will describe the general interview process, including the identification, screening, and interviewing of former SSFL employees through both the EPA-only and joint DOE/EPA efforts. It will also discuss the pursuit of follow-up interviews and protection of confidentiality.

2.1 General Process

Interviewees were identified directly by EPA and DOE in one of two manners. Because contact information for former SSFL employees was considered private and confidential, neither EPA nor DOE had access to this information. As property owner and NAA successor, Boeing maintained SSFL facility records, including employment files. To maintain privacy, DOE reached out to former SSFL employees initially through letters mailed by Boeing, while EPA initially solicited interviews through a public news release and newspaper advertisements. Additionally, former employees were identified indirectly through conversations with community stakeholders, document reviews, screening phone calls, and full interviews. These individuals also were sought out for interviews.

Upon receiving the name of a former employee, EPA and/or DOE conducted research to determine or verify contact information and then reached out to the former employee via telephone. If the former employee was willing, a brief screening call was conducted to collect basic information, ensure the former employee worked in Area IV of the SSFL, and confirm whether the employee would be agreeable to an in-depth interview.

Interviews were generally conducted in person at the former employee's home. Audio recordings and/or notes were taken during the interviews and transcribed into interview summaries. Aerial photographs were used to help orient former employees to the site during the time of their employment and pinpoint locations of known or potential contamination. Information collected in interviews was incorporated in EPA's historical site assessment and Area IV radiological study, as appropriate.

2.2 Solicitation of Interviews

On July 21, 2009, DOE issued a letter to former and current employees of SSFL Area IV through Boeing. This letter informed employees of DOE's own historical interview project and provided options for learning additional information. A postcard was included in the letter that allowed employees to indicate interest in DOE's interview project and provide their contact information for follow up. Approximately 307 postcards were returned to DOE signifying further interest in the interview project.

On November 10, 2009, EPA issued a news release soliciting assistance from former employees of SSFL Area IV in identifying potential radiological contamination at the site. EPA requested interviews with former employees, as well as written information and photographs associated with radiological activities at SSFL. The news release noted that interviews could be conducted by EPA representatives only, DOE representative only, or jointly by EPA and DOE representatives. EPA also placed advertisements in the Los Angeles Daily News, the Simi Valley Acorn, and the Ventura County Star seeking former SSFL employees for interviews. These requests to interview former employees were also picked up by numerous websites actively reporting on SSFL. Additionally, a less formal request for information from former SSFL employees appeared in a May 2009 EPA fact sheet. Approximately, XX calls and/or emails were received by EPA from these solicitations. Because EPA's request to interview former employees was published to the general public, responses came in from former employees, but also from community stakeholders, residents in areas surrounding the SSFL, and survivors of former employees that thought they had information pertinent to EPA's investigation.

Along with the initial EPA and DOE outreach efforts, document review, community stakeholder meetings, screening interviews, and full interviews produced additional former employee names and contact information. This information was collected and pursued. In many cases, the name of a former employee was the only piece of information available. Occasionally, a last known city or last known address was also provided. Regardless of details, EPA, DOE and their representatives examined multiple research databases to determine if the former employee was still alive, where he or she may be living, and what telephone contact information was available. Over XXX (XX by Andrew, 33 by Kim, 85 by DOE in second round) individual names were researched as part of EPA's interview effort.

2.3 EPA Interviews

EPA began conducting telephone screening and interviews in late 2009. A telephone screening script was developed to help gauge the type of information a former employee could provide, ensure it was relevant to EPA's investigation, and determine if the former employee could participate in a formal interview. Screening call questions included:

- When did you work at Santa Susana?
- What type of work did you do?
- What areas of the complex did you work in?

- Did you work with or around any radioactive materials or wastes?

The complete EPA Former Employee Screening Call Script is attached as Appendix A. In some instances, it was discovered that an employee did not work in Area IV of SSFL. Additionally, in the case of community members, local residents, and survivors, calls were often related to providing a specific piece of information thought to be helpful, but not necessarily useful for EPA's goal of characterizing the SSFL. EPA conducted XX (XX of Andrew's first round, 16 calls made by Kim) screening calls in its initial interview effort.

Upon establishing knowledge of SSFL Area IV operational activities and consent for a future interview through the screening call, EPA developed a list of interviewees, primarily former employees, to be scheduled for interviews. This list included XX (26 from Andrew? 8 from Kim) individuals. It should be noted that some interviewees were ultimately interviewed by DOE.

EPA developed an interview script specific to assisting with its radiological characterization study of Area IV. This script served as a guide and was not meant to be inclusive of all questions asked in an interview. Some interviews followed the line of questioning closely, while others were modified, as appropriate, based on an interviewee's responses. The interview script began with questions from the screening call script as a way to review information already provided and serve as a basis for asking more detailed questions. A set of 13 new questions focused on operational details, radiological material use, waste storage and disposal, potential releases or spills, and pathways of release. Interview questions included:

- Describe your typical work activities at SSFL and where they occurred. How were you trained in these activities? Who was your supervisor? Were radioactive materials used in these activities?
- Do you recall the specific type of radiological source material you worked with or around? How was it handled/stored? Where was it stored?
- Was there any on-site disposal of wastes? If so, where? Was there any temporary storage (either aboveground or underground) prior to disposal off-site? Where?
- Do you have any knowledge of spills, leaks, dumping, or other types of releases of radiological material to the land, air, and water?

The complete EPA Interview Questions list is attached in Appendix A. Closing questions always included asking for information not previously provided that might be relevant, the names of other individuals that could assist EPA, and permission for future contact if follow-up questions arise.

In addition to the interview script, another tool used in the interview process was a set of aerial photographs. Aerial photographs of SSFL Area IV from 1952 to 2005 were brought to the interviews with the intention of pinpointing areas of potential contamination based on interviewee knowledge. These photographs can be found in EPA's March 2010 report titled *Aerial Photographic Analysis of Santa Susana Field Laboratory – Area IV*. Mylar sheets were placed over the aerial photographs and permanent markers were used to outline areas of

contamination, release, disposal, or other areas of interest, if known by the interviewees. This provided the easiest and most direct way for interviewee knowledge to be transferred to maps used by EPA's soil sampling teams. However, use of the aerial photographs was not as successful as initially thought and it often took time to familiarize interviewees with this view of the SSFL, as it was not one they had seen before or immediately recognized from working there. Many former employees traced roadways on the aerial photographs to help orient themselves with the SSFL. When areas of interest were marked on the mylar sheets, the sheets were digitized over electronic copies of the aerial photographs to provide a completely digital copy of interviewees annotations. Appendix B presents an example aerial photograph with interviewee annotation. It should be noted that this example also shows EPA's aerial photographic analysis. The use of historical aerial photographs during interviews was another technique to help inform EPA's radiological characterization study.

Ultimately, EPA talked to 49 individuals in its individual interview effort and 6 interviewees were able to identify radiological areas of concern on aerial photographs. Summaries of these interviews are included in Appendix D. It should be noted that the EPA interviews were conducted in two phases. The initial phase was conducted by EPA, while the second phase was conducted by EPA's contractor. Interview summaries provided in Appendix D will reflect different formats, based on the interview phase.

2.4 Joint DOE/EPA Interviews

Because DOE and EPA had overlapping goals with regard to interviewing former employees of SSFL Area IV, EPA was permitted to participant in DOE's outreach efforts. In the fall of 2009, a team of DOE and EPA representatives was convened to establish a joint interview protocol. Discussions were held as necessary via conference call and email over a period of 9 months to refine the joint interview protocol. DOE representatives developed initial telephone and interview scripts and EPA representatives provided feedback to ensure goals of both agencies were met. The Former Employee Screening Call Script and Interview Script are included as Appendix C. It should be noted that the telephone screening call script was used in conjunction with a spreadsheet to track responses.

As a result of DOE's July 2009 letter request, approximately 307 potential interviewees were identified. Using the joint agency-approved script, DOE conducted telephone screening calls of these former employees. A resulting 125 people confirmed interest in being interviewed. These former employees were given an option of interviewing with DOE representatives only, EPA representatives only, or jointly by DOE and EPA representatives. Two former employees from DOE's solicitation opted to be interviewed by EPA representatives only and 18 former employees indicated they would prefer to be interviewed by representatives of both DOE and EPA. The remaining 105 former employees were interviewed by DOE representatives only.

From June 1 through 3, 2010, the DOE/EPA joint interview team convened in Chatsworth, California for interview training. The interview training was followed by a day of conducting interviews, and then a debriefing session to review and refine the joint interview script. Following the training session, the outstanding former employees were scheduled for interviews,

which occurred over the next 3 months. Fifteen joint DOE/EPA interviews were conducted in person and three were conducted over the phone at the interviewees' request.

The joint interview process followed the established protocol. As part of the interview process DOE and Boeing developed documentation to address potential interviewee concerns relating to health issues and pension plans (see Appendix C). It was decided that these documents would be brought to the interviews and provided only if direct concerns were expressed. One set of these documents were ultimately given out in the joint interview process. As with the EPA-only interviews, aerial photographs from 1952 through 2005 where brought to each interview so that potential areas of contamination could be identified. Two joint interviewees were able to annotate aerial photographs with areas of concern. Notes were taken during the interview and typed up in a draft interview summary. The summary was provided to the interviewee for approval. Once the interviews were approved, names and any other personally identifiable information were removed from the summary. Interviewees were informed that their statements would not be used without their approval. Additionally, interviewees were informed that a final interview report would be prepared and they were asked if they would like to receive a copy of that final report. To date, 15 of the 18 former employees interviewed by DOE and EPA have approved their interview summaries. These summaries are included as Appendix E. For additional information on DOE's own historical interview project, see DOE's September 2011 *Former Worker Interview Report*.

Notable in the joint interviews was the collection of historical records from two former employees. EPA found these records particularly useful in drafting its technical memoranda for the historical site assessment of SSFL Area IV.

2.5 Follow-Up Interviews

As noted above, one of the closing questions asked in all of the interviews regarded any other individuals known to an interviewee that could provide additional information to assist EPA and DOE in their characterization and cleanup efforts. This question generated additional names to research and screen. Eighty-five names were provided to EPA after its first round of interviews. EPA sought assistance from DOE and its private investigation firm contractor to research these additional names. Out of the 85 names provided to the private investigation firm, 41 did not have sufficient information to locate contact information. Another 14 were found to be deceased. The DOE investigators conducted screening calls using the DOE/EPA approved Former Employee Screening Call Script. Through the screening calls another 12 individuals declined to participate any further in the interview process. Of the 18 remaining individuals, EPA determined that 3 should be interviewed further and asked DOE to conduct the interviews using the agreed upon interview script. These interviews were processed as DOE interviews, but were made available to EPA for its research teams.

2.6 Confidentiality

Protection of confidentiality is important to the interview process as it provides former employees the ability to speak freely without fear of repercussions. This is particularly important with respect to discussing potential areas of contamination at the SSFL. EPA

explained to any concerned interviewees that the interviews could be conducted anonymously, if desired, and that EPA would protect anonymity by removing personally identifiable information from its notes and interview summaries. Not only was the interviewee's own personal information removed, but references to other individuals were also removed. Five (any more Andrew?) EPA interviewees provided information as anonymous sources.

Interviewees in the joint DOE/EPA interview process were assured that their personal information would be protected as well. Once an interview summary was approved during the joint DOE/EPA interview process, DOE and EPA removed all personally identifiable information. All references to other individuals in an interview were replaced with a three letter code.

As noted above, DOE and Boeing prepared documents ensuring an interviewee's medical and/or pension benefits would be protected. Additionally, DOE agreed that results of its interviews would not be used to support criminal investigations against interviewees.

Additionally, release of records obtained or generated as a result of EPA's or DOE's interview efforts falls under the Privacy Act of 1974, as amended at 5 U.S.C. § 552a. The Privacy Act protects records that can be retrieved by personal identifiers such as a name, social security number, or other identifying number or symbol. An individual is entitled access to his or her records and to request correction of these records, if applicable. The Privacy Act prohibits disclosure of these records without the written consent of the individual(s) to whom the records pertain unless the records are legally exempt.

3.0 RESULTS

The primary goal of EPA's interview effort was to identify potential source areas of contamination at SSFL Area IV requiring further investigation. A secondary goal was to better understand the operational history of the SSFL, especially in the absence of historical documentation. These goals were achieved by talking to former employees who worked at the site and had first-hand knowledge of historical operations. EPA and its representatives talked to former employees who began work at AI in 1953, when Area IV was first developed, as well as employees who worked in Area IV as late as 2007, when operations focused on decontamination and demolition. Interviews were conducted with former employees who worked as technicians, mechanics, reactor operators, engineers, and physicists to name some of the job titles. EPA strived to ensure the scope of the interview effort was representative of the long and diverse history of the site. The results suggest that this was indeed the case.

3.1 Summary of Results

EPA conducted 49 interviews and teamed with DOE for 18 joint interviews. DOE conducted 114 interviews, 96 of which were approved, and made those approved interviews available to EPA for review of information useful to EPA's historical site assessment and radiological characterization study.

Of the 181 interviews conducted by both EPA and DOE combined, only 9 interviewees noted areas of radiological concern on aerial photographs for EPA's characterization study. However, 48 interviewees provided information used in EPA's draft technical memoranda for the SSFL Area IV historical site assessment. Interviewee information generally served to corroborate or annotate historical documentation, but also filled in data gaps when historical records could not be located. In some cases, EPA's research team was able to place potential source areas on maps used by the soil sampling teams based on interviewee information, even if the interviewees could not identify these areas on the aerial photographs. It should also be noted that some of EPA's draft technical memoranda were issued prior to having completed the interview effort, and thus additional interviews may be included in the final SSFL Area IV historical site assessment. However, any immediate areas of concern were passed on to EPA's soil sampling team.

Table 3.1 and Figure 3.1 present summaries of key facts noted in the EPA-only interview process, such as years of employment, job title, handling of radiological material, and the historical site assessment subarea(s) where interviewee information informed the radiological characterization study. The job titles reflected in the table and figure are self-reported titles from the time of employment. Historical job titles may not be equivalent to titles used today. This is particularly true of the title "Engineer." A number of interviewees also had multiple job titles over their careers at SSFL. The job titles reflected in this figure refer to those positions held the longest or during the period where information was used for EPA's historical site assessment. Note this information is not complete without Andrew's information. Andrew we have some different options on how to present data. Each option has pros and cons. I have included example tables and figures in this document (the Excel figure doesn't have place for R/A use) as well as a separate Excel gantt chart that is all inclusive, but will be 11 x 17 in size.

Table 3.1
EPA Interview Results Summary Table

Interviewee Job Title	Handled R/A Material?	Subarea Information	Employment Start Date	Employment End Date	Duration of Employment
Responsible Engineer	Y	5D	1958	1962	4
Mechanic	Y	6	1959	1960	1
Reactor Operator	Y	N/A	1959	1964	5*
Instrumentation Engineer	N	6	1955	1966	11*
Operations Engineer	Y	5D, 6, 7, 8	1963	1999	36
Supervisor	Y	N/A	1992	1994	2
Quality Engineer	N	7	1987	1999	12

* These interviewees spent most of their time at the Desoto and Canoga Park Atomics International facilities and only infrequently worked at the SSFL.

Figure 3.1
EPA Interview Results Summary

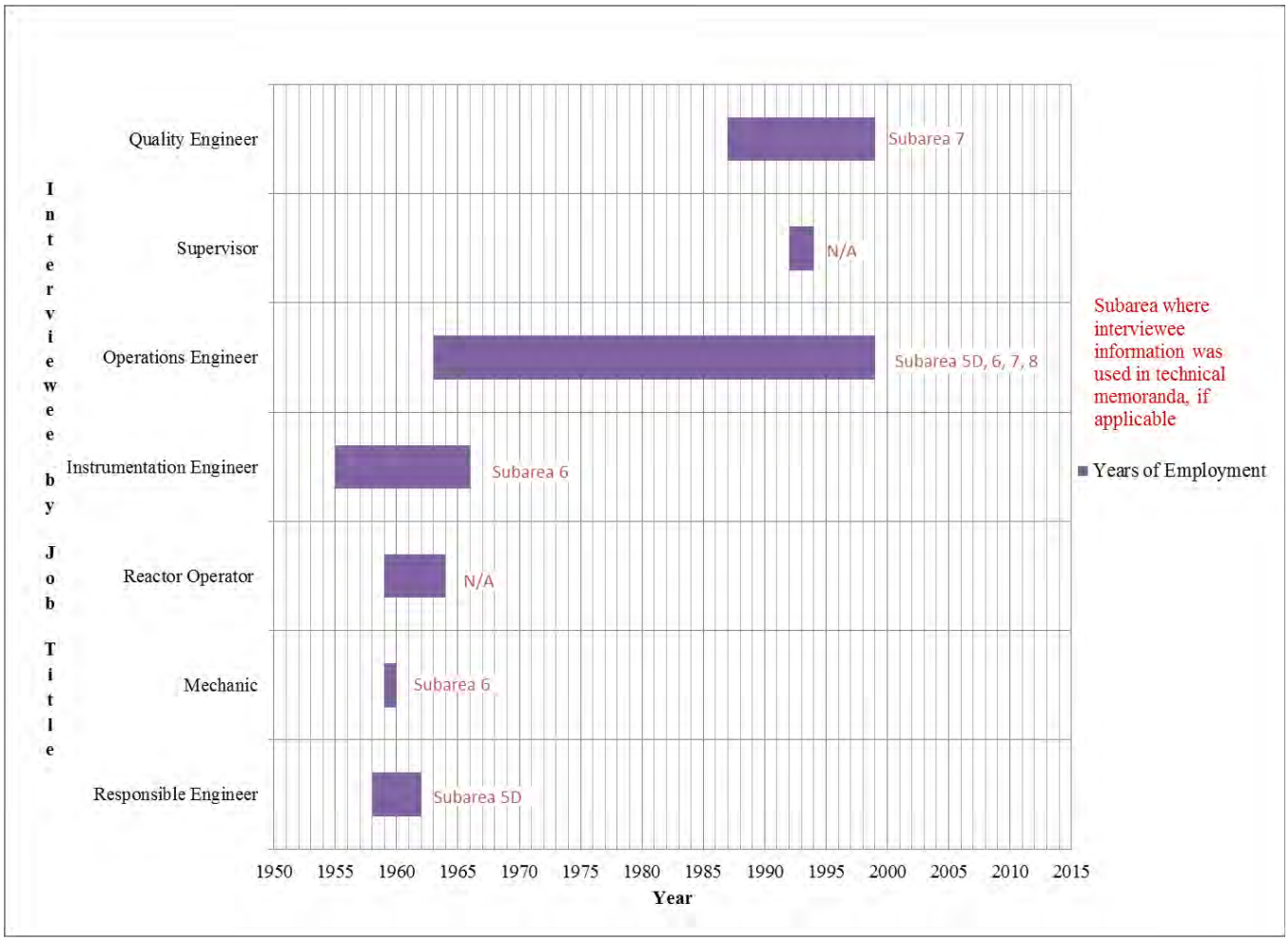


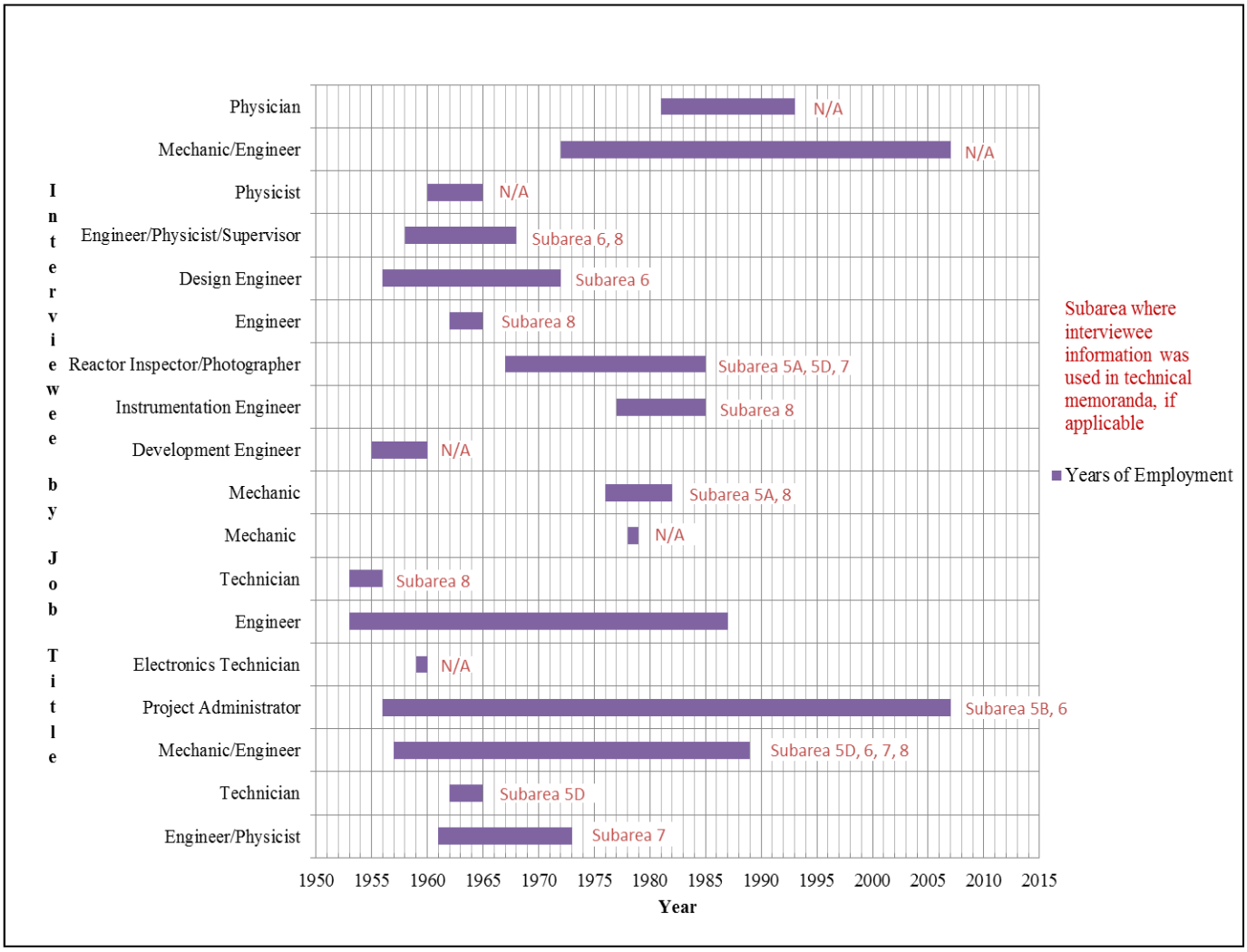
Table 3.2 and Figure 3.2 present summaries of key facts noted in the DOE/EPA joint interview process, such as years of employment, job title, handling of radiological material, and the historical site assessment subarea(s) where interviewee information informed the radiological characterization study. The job titles reflected in the table and figure are self-reported titles from the time of employment. Historical job titles may not be equivalent to titles used today. This is particularly true of the title "Engineer." A number of interviewees also had multiple job titles over their careers at SSFL. The job titles reflected in the table and figure refer to those positions held the longest or during the period where information was used for EPA's historical site assessment.

Table 3.2
DOE/EPA Joint Interview Results Summary Table

Interviewee Job Title	Handled R/A Material?	Subarea Information	Employment Start Date	Employment End Date	Duration of Employment
Engineer/Physicist	Y	7	1961	1973	12
Technician	Y	5D	1962	1965	3
Mechanic/Engineer	Y	5D, 6, 7, 8	1957	1989	32
Project Administrator	Y	5B, 6	1956	2007	51
Electronics Technician	Y	N/A	1959	1960	1
Engineer	N	N/A	1953	1987	34
Technician	N	8	1953	1956	3
Mechanic	N	N/A	1978	1978	1
Mechanic	Y	5A, 8	1976	1982	6
Development Engineer	N	N/A	1955	1960	5
Instrumentation Engineer	N	8	1977	1985	8
Reactor Inspector/Photographer	Y	5A, 5D, 7	1967	1985	18
Engineer	Y	8	1962	1965	3
Design Engineer	Y	6	1956	1981	16*
Engineer/Physicist/Supervisor	Y	6,8	1958	1968	10
Physicist**	Y	N/A	1960	1965	5
Mechanic/Engineer**	Y	N/A	1972	2007	35
Physician**	Y	N/A	1981	1993	12

* This interviewee worked for Atomics International from 1956 to 1963 and then again from 1972 to 1981.
** These interviews have not yet been approved.

Figure 3.2
DOE/EPA Joint Interview Results Summary



Although not all interviews provided useful information for EPA's radiological characterization study, EPA acknowledges that all information provided by interviewees is an important part of the historical record at SSFL. The inclusion of interview summaries in Appendix D of this report helps to preserve a piece of that historical record.

3.2 Interview Highlights

Although all interviews contributed to the SSFL body of knowledge, some key interviews provided great value to the EPA historical site assessment and radiological characterization study. Of specific interest to EPA was information pertaining to radiological material, including use, storage, disposal, and spills or incidents; site information such as building or area operations and their specific appurtenances; and document management, including record keeping, storage and retention. This information was used to develop EPA's historical site assessment and identify locations for soil sampling to further characterize the SSFL Area IV site. The extent of information provided by key interviews can be found in EPA's 2010 and 2011 draft technical memoranda for the historical site assessment of SSFL Area IV. The key interviews are highlighted below.

- A responsible engineer who worked for AI at SSFL from 1958 to 1962 provided extensive information on the Kinetics Experiments Water Boiler (KEWB) reactor. As the responsible engineer for the reactor, this interviewee provided details on the operational history of the KEWB reactor, radiological material use and disposal, tanks and plumbing, and areas of possible residual contamination. This information can be found in EPA's January 2011 *Draft Technical Memorandum, Subarea HSA-5A, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California*.

- A technician who worked for AI from 1962 to 1965 provided useful information on the Hot Lab. This interviewee provided details on radiological waste processing and disposal, building features, protection of worker health, and examples of procedures for unplanned events. Information from this interview can be found in EPA's April 2011 *Draft Technical Memorandum, Subarea HSA-5D, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California*.

- A mechanic who worked for AI from 1959 to 1960 provided extensive information on the Sodium Reactor Experiment (SRE) fuel element failure. This interviewee provided nearly step-by-step details on the cleanup and fuel element recovery efforts resulting from the 1959 SRE incident. In addition, the interviewee noted cleaning practices, waste storage and disposal practices, weather monitoring, safety practices, and challenges faced during this event. Information from this interview can be found in EPA's June 2011 *Draft Technical Memorandum, Subarea HSA-6, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California.*

- A mechanic/engineer who worked for AI and Rocketdyne at the SSFL from 1957 to 1989 provided substantial information on the Hot Lab and Radioactive Materials Handling Facility (RMHF), as well as useful information on the SRE, Sodium Burn Pit, and Uranium Carbide Fuel Pilot Plant. This interviewee provided extensive information on operations at the Hot Lab and RMHF, and additional information on building features, waste management, spills and cleanup, and worker safety. The interviewee also provided

information on SRE dismantling operations, use of the Sodium Burn Pit, and safety information related to the Uranium Carbide Fuel Pilot Plant. Additionally, the interviewee provided the DOE and EPA interview team documents that informed the EPA historical site assessment for the Hot Lab. Information from this interview can be found in EPA's April 2011 *Draft Technical Memorandum, Subarea HSA-5D, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California*; EPA's August 2011 *Draft Technical Memorandum, Subarea HSA-7, Subarea HSA-3, Subarea Northern Buffer Zone, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California;* EPA's June 2011 *Draft Technical Memorandum, Subarea HSA-6, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California;* and EPA's January 2011 *Draft Technical Memorandum, Subarea HSA-5A, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California*.

- An engineer/physicist who worked for AI at SSFL from 1961 to 1973 provided extensive information on the Shield Test and Irradiation Reactor (STIR). This interviewee provided details on the operational history of the reactor; radiological use, handling and storage; water retention and drainage features around the reactor building; and document management. Additionally, this interviewee provided the DOE and EPA interview team numerous documents and reports that informed the EPA historical site assessment for the STIR. Information from this interview can be found in EPA's August 2011 *Draft Technical Memorandum, Subarea HSA-7, Subarea HSA-3, Subarea Northern Buffer Zone, Historical Site Assessment, Santa Susana Field Laboratory Site, Area IV Radiological Study, Ventura County, California*.

None of these key interviewees provided annotations to aerial photographs, but the information provided during the course of the interview allowed EPA's research team to highlight locations on SSFL area maps where soil sampling should occur. As noted above, in addition to these key interviews, nine interviewees provided information on aerial photographs that EPA's soil sampling teams used to inform their work.

4.0 CONCLUSIONS

Interviews conducted by EPA and DOE helped provide a well-rounded and informative history of SSFL Area IV. Generally, both interviewees and interviewers appreciated the process. Interviewees often mentioned the exciting nature of the work that was going on at SSFL and the sense of pride they had in their work. Interviewers were able to glean relevant information for characterization and cleanup efforts by their respective agencies and better understand operations at the SSFL from the men and women that worked there.

The interview process was one of many important components of EPA's historical site assessment of SSFL Area IV, which itself was one of many lines of evidence used to identify potential contamination source areas at SSFL Area IV. This was EPA's primary goal for the radiological characterization study. By identifying potential source areas, soil sampling teams

could evaluate these areas against established cleanup levels and determine whether further remedial action was necessary. EPA would like to thank all those who participated in and contributed to the interview process. It is through this collective action that remedial goals for SSFL will be met and a piece of history will be preserved.

Appendix A

EPA Interview Script/Questions

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Former Employee Screening Call Script

Telephone Screening Script

Hello, my name is _____ may I please speak to _____? My name is _____ and I work for HydroGeoLogic, a contractor for the Environmental Protection Agency (EPA). The EPA is developing a history of site operations at Area IV of the Santa Susana Field Laboratory in Simi Valley, California and has been conducting interviews to gather information. I am calling to find out a little more about your experience at Santa Susana. Do you have time to answer some preliminary questions?

1) When did you work at Santa Susana? *[Record start and end year]*

2) Who did you work for? *[Record name of company, North American, AI, Rocketdyne, NASA, etc.]*

3) What was your job title or titles? If multiple job titles are mentioned, ask for the approximate timeframe each position was held. *[Record full titles]*

4) What type[s] of work did you do? *[Record short answers]*

5) What areas of the complex did you work in? *[Record Areas]*
   a) Where did you spend the most time?
   b) At what other areas did you perform or observe work?
   c) If Area IV is mentioned, ask about any specific buildings and/or programs.

6) a) Did you work with or around any radioactive materials or radioactive wastes? [*Yes/No; Where?]*

   b) Did you observe the handling or disposal or radioactive material or waste? [Yes/No, Where?]

   c) Did you ever wear a dosimetry badge?

7) The EPA is specifically interested in operational information related to radioactive materials and waste. Since you indicated that you have knowledge in this area, would you be willing to be interviewed by EPA?

8) We will get back to you to schedule a date, time and place for your interview. We may do some interviews by telephone and some in person, do you have a preference? *[In-person or Telephone]*

9) Can you please confirm for me your mailing address and/or e-mail address and any other telephone numbers so that we can reach you easily? *[Verify and update contact info]*

Thank you for your time in answering these questions. You have been very helpful and we appreciate your assistance.

-- End of Script --

At the conclusion of the call the Screener will make subjective notes in the spreadsheet about:

a) Health status (frail, said they were sick, spouse reported recent stroke, etc.)
b) Mental status (seemed clear, seemed confused)
c) Hearing issues (difficult to communicate with on the telephone)
d) Attitude (cooperative, fearful, angry, hesitant)

EPA/HGL In-Person Interviews

Review of information provided in screening call (Questions 1-6 below). Use aerial photos/maps to review Area IV locations.

1. When did you work at Santa Susana?
2. Who did you work for?
3. What was your job title(s) and timeframe of each position?
4. What type(s) of work did you do?
5. Where in Area IV did you work? What buildings or programs did you work in/on? Where did you spend most of your time in Area IV?
6. Did you work with or around any radioactive materials or wastes? Where? Did you observe the handling or disposal of radioactive material or waste? Did you wear a dosimetry/film badge?

Additional questions to gather more detailed information.

1. Describe your typical work activities at SSFL and where they occurred. How were you trained in these activities? Who was your supervisor? Were radioactive materials used in these activities?

2. Are you aware of any other activities that occurred in the building you worked in outside from the work you were conducting?

3. Do you recall the specific type of radiological source material you worked with or around? How was it handled/stored? Where was it stored?

4. Do you recall the specific type of radiological waste material you worked with or around? How was it disposed?

5. Was there any on-site disposal of wastes? If so, where? Was there any temporary storage (either aboveground or underground) prior to disposal off-site? Where?

6. Were you aware of any unusual occurrences or accidents during your time at SSFL? Either pertaining to the building you worked in or to another area of the site.

7. Do you have any knowledge of spills, leaks, dumping, or other types of releases of radiological material to the land, air, and water?

8. Are you aware of any leach fields, septic tanks, or drainage discharge locations? If so, where?

9. Are you aware of any storage tanks, gas holdup tanks, etc.? If so, where are they located?

10. Are you aware of any problems with underground pumps, sumps, storage tanks, piping, sewer, or drainage systems?

11. Do you have any concerns about contamination at the site? Any areas that EPA should evaluate more closely?

12. Were you aware of any other activities being conducted at the site not done by your employer? Other contractors?

13. Did you keep any memorabilia, scrapbooks, or photographs of your experience? [I will actually ask this when scheduling interviews so any information can be made available]

Closing questions

1. Is there any other information on activities at SSFL you think might help EPA's investigation into contamination at the site?

2. Can you think of any other individuals that could help EPA's search for information about SSFL activities? Do you have last known contact information?

3. May we contact you in the future if we have any follow-up questions?

Appendix B

Sample Aerial Photograph Annotation

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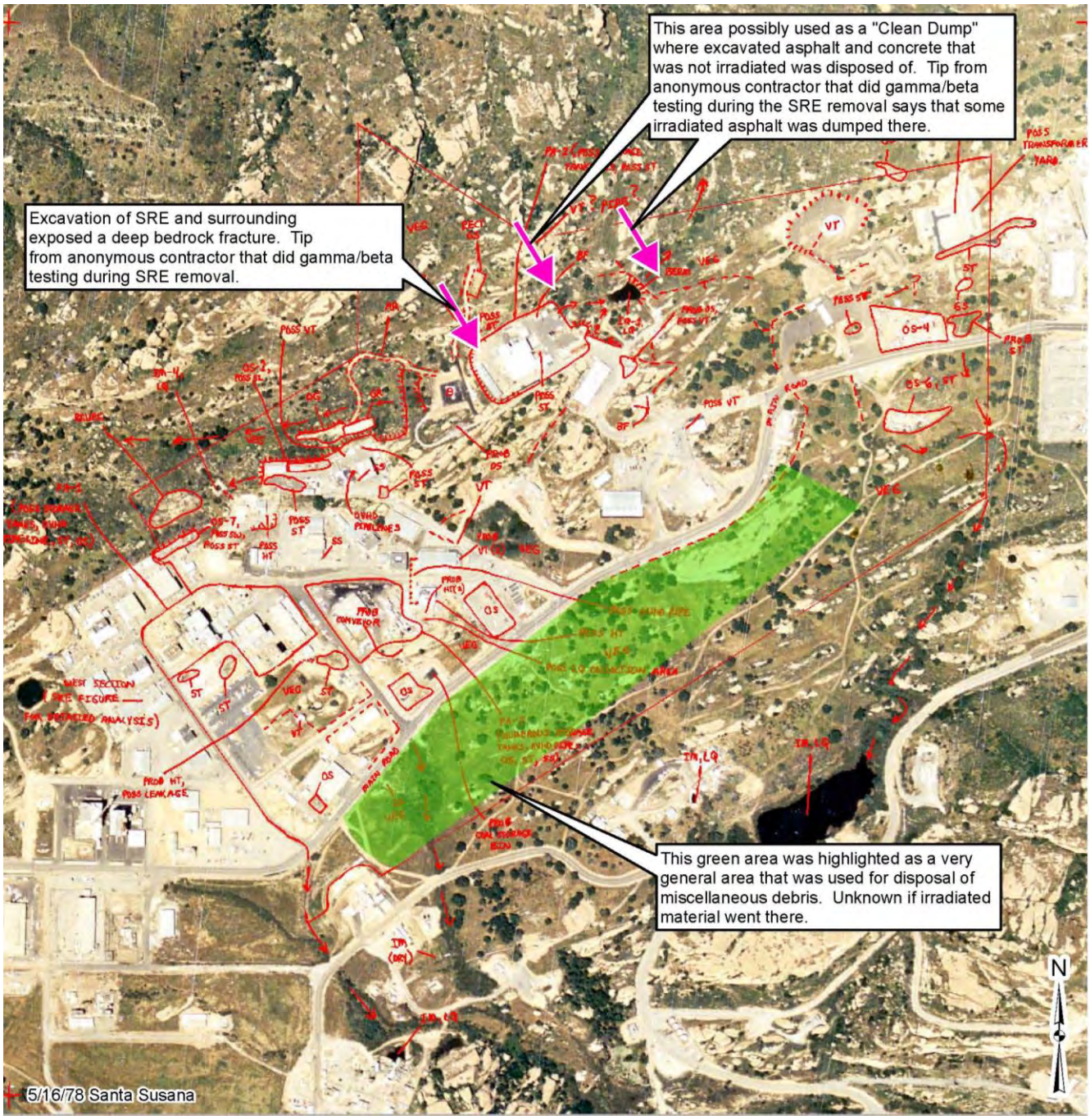
This area possibly used as a "Clean Dump" where excavated asphalt and concrete that was not irradiated was disposed of. Tip from anonymous contractor that did gamma/beta testing during the SRE removal says that some irradiated asphalt was dumped there.
Excavation of SRE and surrounding exposed a deep bedrock fracture. Tip from anonymous contractor that did gamma/beta testing during SRE removal.
This green area was highlighted as a very general area that was used for disposal of miscellaneous debris. Unknown if irradiated material went there.
N
5/16/78 Santa Susana

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Appendix C

DOE/EPA Joint Interview Script/Questions

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Former Employee Screening Call Script

The Department of Energy is in the early stages of preparing an Environmental Impact Statement to support decisions about how best to remove remaining facilities and contamination that resulted from their activities in Area IV at the Santa Susana Field Laboratory. In addition, the US Environmental Protection Agency is conducting a radiological survey to determine where radioactive contamination is on the site. In order to help DOE and EPA do a thorough job, they are interested in interviewing former employees that worked at the site.

The Boeing Company sent out letters to approximately 10,000 former employees to notify them of an opportunity to participate in tours of SSFL, public meetings, and asking if they were interested in being interviewed concerning their work at the site. Approximately 300 former employees have responded indicating a willingness to be interviewed. We will conduct screening telephone calls with these former employees to confirm the accuracy of their contact information, determine the time frame of their association with SSFL and the type(s) of work they performed at the site. The information gathered during the telephone screening calls will be used to plan and conduct face to face or extended telephone interviews.

The following list of questions has been developed to elicit brief, factual answers that can be used to evaluate the types of information that we might learn from each former employee and match them with appropriate interviewers or interview teams.

Telephone Screening Script

Hello, my name is _____. May I please speak to _____? Recently you were contacted because you used to work at the Santa Susana Field Lab and you indicated that you might be willing to be interviewed concerning your recollections of your time there. I'm calling on behalf of the US Department of Energy to follow up with you and find out a little more about your work at Santa Susana. Are you still interested in being interviewed? This is not the interview, but rather we are seeking to learn a little bit more about your employment so that we can schedule the appropriate type of interview later. Do you have a few minutes now to answer a few preliminary questions?

The purpose for our interviews will be to develop a fully-informed history of site operations and facilities for use in preparing environmental documentation that is being prepared to support final cleanup and closure of DOE's facilities at the SSFL.

1) When did you work at Santa Susana Field Laboratory?

[Record start year and end year, confirm total number of years calculated by spreadsheet.]

2) What company or organization(s) did you work for?

[Record "1" in column corresponding with the name of company. Record all responses.]

3) What was your job title or titles?

[Record titles. If multiple titles are given, record all. If only one mentioned, do not press.]

4) What areas of the complex did you work in? (If Area IV, ask where)

[Record "1" in column corresponding with the administrative area of site. Record all responses. If Area IV is mentioned, ask where and record specific buildings and/or programs mentioned.]

5) The following questions will help us pair you with the most appropriate interview team.

a) Did you work with or around, or manage any chemicals, or cleaning materials?
b) Did you work with or around, or manager any radioactive materials or radioactive wastes?
c) Did you ever wear a dosimetry or film badge?

[Record "1" for Yes, leave blank for No.]

Ask Question No. 6 only if former employee indicated that he/she worked in Area 4 (Question 4) or worked with radioactive materials/waste (Question 5).

6) The US Environmental Protection Agency is also interviewing former employees about Area 4 at SSFL. There are three options that you can choose from your interview.

- You can be interviewed by EPA alone
- By DOE alone
- Or jointly by both EPA and DOE

Which would you prefer?

[Indicate one choice only, using "1" in the proper column to indicate their preference.]

7) Based on your work or observations at the site do you have any specific concerns that you think we should learn about right away to help us focus our investigations over the next few months? We will use this information to determine who should be involved in your interview and how soon we will need to get your interview scheduled.

[Use "1" to indicate an affirmative response. Please avoid allowing caller to share their concerns/observations during the screening call by explaining that you would like them to share that information with the interviewer instead.]

8) Many of the interviews will be conducted by telephone. Would that work for you?

[If not, record concern briefly.]

9) Once we look at the results of all of these screening calls, we will be in touch again to schedule your interview. When is the best time to reach you?

[Record response capturing preferences about day of week, time of day, etc. as well as upcoming plans they mention.]

10) Finally, we want to confirm the contact information we have for you. Is this the best telephone number to reach you at?

[Read number aloud, record different number upon request.]

Is this address correct?

[Read aloud, correct as appropriate.]

Is this email address correct? / Do you have an email address?

[Read aloud if we have one, confirm, record if we don't already have one.]

Thank you for your time in answering these questions. You have been very helpful and we appreciate your assistance. Once we have completed these screening calls, we will be back in touch to schedule the interview.

-- End of Script --

At the conclusion of the call, please record your notes in the spreadsheet about the following which should be considered during scheduling of interviews:

a) Health status (frail, said they were sick, spouse reported recent stroke, etc.)
b) Mental status (seemed clear, seemed confused)
c) Hearing issues (difficult to communicate with on the telephone)
d) Attitude (cooperative, fearful, angry, hesitant)
e) Expressed desire to have family member (spouse or child) participate/present for interview

Preparation for each Interview

Take the following to each interview

- A copy of the health concerns fact sheet (to be left with the individual if they express concerns about health issues they attribute to their employment at SSFL)
- A copy of the letter from Boeing (to be left with the individual as needed)
- A set of aerial photographs to help them remember what things looked like when they worked there
- Sheets of mylar and appropriate marking pens to record locations of facilities, buildings, release sites, disposal sites, storage sites, etc. that come up during the interview
- A set of fact sheets about the Area IV facilities (for use by the interviewer)
- Envelopes and/or boxes to transport materials provided by the former employee.

Questions and Answers

In response to questions/expressions of concern about the confidentiality of their responses to questions and/or the interview process:

"Once DOE finalizes the environmental documentation that they prepare to support decisions about how to clean-up the site, the information learned during the interviews will be made public, but that information will not include the names of the people that have been interviewed. DOE also expects to share that information provided by former employees with the Environmental Protection Agency and the California Department of Toxic Substances Control. However, if DOE is required to respond to an appropriate legal inquiry, such as a Freedom of Information Act request, for example, DOE may be required to disclose the names of people who have been interviewed. In other words, we will only disclose your name if we are required to under a properly filed legal inquiry."

In response to expressions of concerns about whether providing the information requested in the interview could jeopardize a worker's pension:

"DOE has talked with Boeing and we would like to give you their assurance regarding the information you might share with us during this interview. We have a copy of a letter provided by Boeing that explains that nothing that is said will jeopardize any former employee's pension or retirement plan. This letter also encourages retirees to participate in this interview with honesty and candor."

In response to any mention of concerns about health effects associated with working at SSFL:

"Individuals, or their eligible survivors, who worked as an employee, contractor, or subcontractor at a Department of Energy (DOE) facility and have been diagnosed with an illness that may have been caused by that work may be eligible for benefits under the Energy Employees' Occupational Illness Compensation Program (EEOICPA). We have prepared a fact sheet with information about this program if you are interested. Employees, or their survivors, whose claims are approved may receive a lump-sum payment up to $150,000 and medical benefits for the covered illness. Other benefits may be possible. This fact sheet has addresses, telephone numbers, and email addresses for obtaining further information."

Interview Script

Hello. My name is (name) and this is (name). Thank you for being willing to sit down with us today. As you know, we are interviewing former employees who worked at the Santa Susana Field Laboratory. DOE has decided that it no longer needs to conduct research activities at the SSFL and that it is time to remove all of the facilities and clean up the portion of the site where their operations occurred.

To support decisions about how to clean up the site, DOE needs to know the nature and extent of all environmental contamination that is attributable to Area IV activities. Before they can begin that process, site investigations will be done to identify the location of contamination at the site, including a radiological survey that will be completed by the US Environmental Protection Agency. What you tell us during this interview will help us know where to look during the site investigations.

In addition, this interview will help us:

- Develop a fully-informed history of site operations and facilities
- Learn about operational procedures that were used over the years for handling radioactive and chemical materials, as well as any unplanned or unusual events that occurred, so that DOE can develop a full understanding of radiological and hazardous chemical handling and any releases that may have occurred
- Identify what records exist and where those records might be located
- Identify additional people who might have relevant knowledge.

Before we get too far along, I would like to review a few points about these interviews and how we will use your answers to our questions.

During the interview, I will be asking the questions and (name) will be taking notes. We both may ask clarifying questions to make sure we understand what you are telling us. Once the interview is complete, we will type up our notes of this conversation and provide the draft to you for your approval. Once you have approved the notes from your interview, we will remove your personal information and submit the notes for inclusion in the report on all of the interviews.

When the interview process is completed, we will prepare a final report. As one of the individuals interviewed, we will provide you with a copy of that final document if you are interested. Would you like a copy of the final report on all of the interviews?

Yes No (circle one)

(Show them the aerial maps and explain how they will be used. Ask if they have any materials to share with us. If any appear to be particularly valuable, ask if we could have or make copies at the end of the interview. Put in an appropriate and labeled envelope/box. Make every effort to return materials that they want back.)

With that, we are ready to begin the interview. We have a number of topic areas that we would like to ask you about. We will try to complete the interview within (the estimated timeframe).

Before we get started, do you have any questions about this interview or what we will be doing with your responses?

Start of Interview

Interviewee Name and Affiliation: _____

Interview Date, Time, and Location: _____

1. Based on the screening call, we understand that you (review what we already know). What else can you tell us about what it was like to work at Santa Susana Field Laboratory?

   (Prompting questions: Where did you work at the SSFL? What did you do? What were some of the projects you worked on? When did you work at the SSFL and what were your responsibilities over that timeframe? Describe your typical work activities at SSFL and where they occurred. How were you trained in these activities? Who supervised your work?)

2. What do you know about radiological materials that were generated and/or stored at the SSFL? What can you tell us about normal operations related to the handling of radiological materials? How where they handled? How and where were they stored? How were they dispositioned?

3. We recognize that much of the work at SSFL was primarily experimental and with experiments, sometimes things did not go as planned. What happened when something occurred that was out of the ordinary or unplanned?

   (Prompting questions: How often did off-normal events involving radiological materials occur? How were those occasions documented? What happened in the event that a worker was exposed to radiation? What was the decontamination procedure? What happened to contaminated clothing and equipment?)

4. How was worker exposure to radiological materials monitored? Did you wear a radiation badge or dosimeter? Did you regularly use or work with someone who regularly used radiation monitoring equipment?

5. Was there any on-site disposal of radiological wastes? If so, where? Was there any temporary storage (either aboveground or underground) prior to disposal off-site? Where? Do you have any knowledge of spills, leaks, dumping, or other types of releases of radiological material to the land, air, or water?

6. What hazardous chemicals were generated and/or stored at the SSFL? A partial list of chemicals that we would be interested in would include: chlorinated solvents, metals, PCBs, asbestos, and fire retardants. What can you tell us about normal operations related to the handling of those hazardous chemicals? How were they handled? How and where were they stored? How were they dispositioned?

7. How often did off-normal events occur involving hazardous chemicals? What happened when something occurred that was out of the ordinary or unplanned? How were those occasions documented?

8. Was there any on-site disposal of hazardous chemicals? If so, where? Was there any temporary storage (either aboveground or underground) prior to disposal off-site? Where?

9. Do you have any knowledge of spills, leaks, dumping, or other types of releases of hazardous chemicals to the land, air, and water?

10. Were there company policies and procedures in place that dictated how to do your work? How closely were those policies and procedures followed? How often did they change? Was there a workplace culture that supported compliance with standard operating procedures, or was it common for workers to disregard those procedures? What happened if there was no specific procedure in place?
11. How were workers trained? How was performance monitored? We know it was standard practice at facilities like SSFL to bury waste materials. Do you know of any waste materials that were buried on site? Where?
12. We have records that show most of the radioactive and hazardous materials were hauled away and disposed of elsewhere. We do know that some of the rocket fuel materials used in Areas I and II was left behind in drainages. Are you familiar with anything similar happening in Area IV?
13. How did you document what you did?

    (Prompting questions: Do you write in log-books, ledgers, or other records? Where were those kept and where did they go when you were done with them? What sorts of activities were documented? Do you know of anything that occurred that was not documented? Do you know of any documents, log books, records, or other documentation that may not be in the official records? Where are those located and how might we go about getting copies? Did you keep any records at home? Do you still have any of those records?)
14. Did anything ever happen that was not documented? We don't care who was responsible – we just want to understand how complete the existing documents are. Who managed the reports on incidents?
15. Were any liquid materials ever disposed of using toilets or floor drains to dispose of anything?
16. What can you tell me about the following facilities in Area IV:
    a. The sodium burn pit
    b. A surface disposal area at the western edge of Area IV
    c. Any of the leach fields, septic tanks, or drainage discharge locations
    d. The old conservation yard (junk yard)
    e. Any storage tanks, gas holdup tanks, etc.?

    Tell us more about that.
17. Are you aware of any problems with underground pumps, sumps, storage tanks, piping, sewer, or drainage systems?
18. Is there anything else you would like to tell me today?
19. Can you think of any other individuals that could help us develop a full understanding about site contamination within Area IV at SSFL? Do you know how to get in touch with them?
20. May we contact you again in the future if we have any follow-up questions?

We want you to know how much we appreciate your time today. Can you make sure we have the correct contact information for you? Thank you so very much for talking with us today.

Insert Boeing letter here

Insert health fact sheet here.

Appendix D

EPA Interview Summaries

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Appendix E

DOE/EPA Joint Interview Summaries

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